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Goddard Space Flight Center

Inside Wallops

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Pradeep Sinha (Code 200), fifth from the right, and Joe Duke (Code 830) second from the right, join Navy AEGIS personnel Dec. 3 in a ground breaking ceremony for new family housing units in what is commonly referred to as the "potato field".
Photo by Tom Burton

NASA Software Clearly Displays Breast Tumor Scans in 3-D

NASA has developed clear, accurate three-dimensional (3-D) images made from a series of scans of a breast and tumor known as a "reconstruction," that offer a computerized object a physician wearing 3-D glasses can see from all angles on a computer monitor.

"These reconstructions are highly accurate 3-D visual models of affected breasts with tumors. Once this technique is fully developed, we think physicians will be able to visualize the borders of tumors more clearly," said Dr. Muriel Ross of NASA's Ames Research Center.

In the new technique, a series of Magnetic Resonance Imaging (MRI) breast scans are combined to make a 3-D image using Reconstruction of Serial Sections (ROSS) software that was developed in the Biocomputation Center. The method eliminates "noise," or interference, seen in more common renderings of breast tissues done in many clinics.

"For this initial reconstruction, we combined features of the ROSS software we have been using with another version we use for Computed Axial Tomography (CAT) scans," Ross said. "Eventually, a special version of the software will be developed for MRI. In the meantime, we have demonstrated that high fidelity, 3-D reconstructions can be made from typical MRI breast scans."

Normally, mammograms are used for initial screening for breast cancer. If a suspicious lump is detected, a follow-up MRI using contrast medium can be conducted. "The medium is injected into the patient's blood stream. This medium rapidly concentrates in the tumor which shows in the scan as a bright area. But even with this technique, it is hard to see where the tumor begins and ends," Ross said.

"Later, we intend to work with sonograms," she said. A sonogram is a scan that uses sound to visualize objects inside bodies. "We want to reduce noise that comes from multiple, echo-like reflections of sound coming from tissues. Borders of objects can be difficult to define because echoes bounce and can interfere with one another."

The NASA Biocomputation Center at Ames will become part of a larger National Biocomputation Center soon to be established by NASA and Stanford University, Palo Alto, CA, according to Ross. "The new center will be a national resource to further the use of virtual reality in medicine," Ross said.

The team is interested in working with mastectomy patients needing breast reconstruction, and children who need reconstructive surgery to correct deformities of the head and face. Eventually the system could be used in other medical specialties or surgical procedures.

Development of the breast tumor enhancement software follows an agreement that enlists NASA technologies to fight breast cancer and other women's illnesses between representatives of NASA and the Department of Health and Human Services.

Additional information is available at URL: **http://www.hq.nasa.gov/office/pao/facts/cancer_tech.html**

Wallops Shorts

A Terrier-Black Brant sounding rocket was successfully launched Dec. 2 from Ny-Alesund, Svalbard, Norway. The plasma physics payload was to conduct a temporal/spatial investigation of the dayside auroral cusp. The principal investigator was Dr. Nelson Maynard, Mission Research Corporation, and the payload manager was Bruce Scott, Code 823.

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Space Concert

Once again, Wallops personnel will be assisting the Salisbury Symphony Orchestra with a Space Concert. The concert will be Saturday evening, Jan. 31, and Sunday afternoon, Feb. 1, 1998. Volunteers are need to staff displays on each day and to assist with the set up prior to the concert. Anyone interested in helping is asked to call the Public Affairs Office, x1584.

Engineers Week

Volunteers are needed for Engineers Week activities during the week of Feb. 23, 1998. During the week, employees fill requests from area teachers to speak to classes or do short demonstrations in the classroom. For more information, call the Public Affairs Office, x1584.

It's Finally Here!

NASA has just published a book titled Wallops Station and the Creation of an American Space Program. The book focuses on the political, administrative and social history aspects of Wallops from 1957 to 1966. In addition to the mounds of documents reviewed for the publication, the author, Harold Wallace, also interviewed Wallops retirees Bob Duffy, Chris Floyd, Marvin McGoogan, Joyce Milliner, Joe Robbins, and Abe Spinak.

The book is being distributed to all NASA civil service personnel through their division office. Contract personnel who would like a copy should stop by the Public Affairs Office, Building F-6, Room 108. No copies will be sent through the guard mail.

A Wet Wallops

Ted Wilz, Senior Meteorologist

Last month was the wettest November on record. The recorded rainfall of 7.35 inches well exceeded the monthly average of 2.76 inches. Temperatures also were cooler than normal. The average temperature of 48 degrees was nearly two degrees below normal. As can be expected, no new record high temperatures were set, but a record low of 27 degrees was tied on Nov. 19. Temperatures varied from 27 degrees on Nov. 19 to a very pleasant 68 degrees on Nov. 2.

The new year brings us into the depths of winter weather, with January and February usually providing the harshest weather the Eastern Shore experiences. Clouds and winds are prevalent as well as the coldest temperatures of the the year. The odds are greatest for receiving "that dreaded white stuff", with an average annual snowfall of eight inches. This area usually experiences three inches of snowfall in January and slightly more in February. Last year, although we did not receive a severe snowfall, six inches were recorded in January.

More often than not, January precipitation does not arrive in the form of snow. Winter weather systems produce rain, with the monthly average being 3.16 inches. There are usually ten days during the month with measurable precipitation with only two of those days being snowfall.

January is our coldest month, with maximum temperatures averaging in the low to mid-40's. Nighttime lows are usually in the mid to upper-20's. An occasional Arctic push of air from the north can drive temperatures to single digits. Conversley, a strong southerly air ahead of a cold from can drive temperatures 20 to 30 degrees above normal. Record temperatures range from a high of 74 degrees recorded on Jan. 27, 1974 to a record low of –4 degrees set on January 17, 1965.

Along the Eastern Shore, be prepared for anything from the weather! Kids, get the sleds ready and tell Dad not to put the golf clubs too far back in the closet. Best wishes for a happy holiday season from the Weather Office.

The Wallops Cafeteria will be closed Dec. 22 through Dec. 26. It will reopen Dec. 29 and will remain open during the holiday except for Jan. 1.

Happy Holidays
from the
Cafeteria Staff!!

Wallops Awards Ceremony

Friday, Dec. 12
Building D-10
2:30 p.m.
Guest Speaker is
Joe Rothenberg, Center Director

Sincere sympathy is extended
to the family and friends of
Jean F. Hall
who died Dec. 2
at Peninsula Regional-Medical Center.
Hall retired in 1986
as a resource analyst in the
Resources Management Office.

A Security Reminder

Make yourself a "Hard Target" for holiday criminals

Protect your personal safety in malls and stores this holiday season. Following are some tips to help make you a "hard target" for criminals.

Stay alert — and look alert – at all times.

Use erect, confident posture.

Carry a fanny pack or a shoulder bag. The bag's strap should cross to the opposite shoulder. Its opening should be turned inward toward your body.

Don't wear expensive-looking jewelry.

Carry few or no packages.

Wear comfortable walking or running shoes.

Children's Christmas Party
Monday, Dec.22
Building F-3
6 to 9 p.m.

Pre-register prior to Dec. 12 by calling Rebecca Johnson x1559, Nicole Turner x2234, Cheryl Johnson x1607 or Karen Downing x2163. Sponsored by the Morale Activities Committee and Black History Club.

Wallops Employee Morale Association
and Morale Activities Committee
invite you to the
Wallops Open House
Friday, Dec. 12 in Building F-3
immediately following the
Annual Awards Ceremony.
The Randy Lee Ashcraft Band
will perform 6:30 to 10:30 p.m.

Center Director's Colloquia Series

Exploring the Universe from Space

Who: Malcolm S. Longair, Jacksonian Professor of Natural Philosophy, Cavendish Laboratory, Cambridge, England

When: Tuesday, Dec. 9, 10 to 11:30 a.m.

Where: Greenbelt (Wallops via TV channel 6)

Description:

Our view of the Universe has evolved beyond all recognition over the last decade. Space and ground-based observations have provided complementary information enabling astro-physicists to assemble a convincing picture of information coming from space observations. The picture is, however, seriously incomplete.

In this audio-visual presentation, the great successes and the unsolved problems will be reviewed at a non-technical level. Longair's presentation will feature the latest ground-based and space observations on the origin and evolution of galaxies and the Universe. The presentation will include many examples and interactive simulations designed to illustrate key aspects of the physics of our Universe.

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